

ded in those bubbles, by the losing of their agitation, by the decrease of the Heat, lose also most part of their Spring and Expansive power; it follows (the withdrawing of the heat being very sudden) that the parts must be left in a very loose Texture, and by reason of the implication of the parts one about another, which from their sluggishness and glutinousness I suppose to be much after the manner of the sticks in a Thorn-bush, or a Lock of Wool; It will follow, I say, that the parts will hold each other very strongly together, and endeavour to draw each other neerer together, and consequently their Texture must be very hard and stiff, but very much rarified.

And this will make probable my next Position, That *the parts of the Glass are under a kind of tension or flexure, out of which they endeavour to extricate and free themselves*, and thereby all the parts draw towards the Center or middle, and would, if the outward parts would give way, as they do when the outward parts cool leisurely (as in baking of Glasses) contract the bulk of the drop into a much less compass. For since, as I proved before, the Internal parts of the drop, when fluid, were of a very rarified Texture, and, as it were, to be open like a Lock of Wool, and if they were suffered leisurely to cool, would be again prest, as it were, close together: And since that the heat, which kept them bended and open, is removed, and yet the parts not suffered to get as neer together as they naturally would; It follows, that the Particles remain under a kind of *tension* and *flexure*, and consequently have an endeavour to free themselves from that *bending* and *distension*, which they do, as soon as either the tip be broken, or as soon as by a leisurely heating and cooling, the parts are nealed into another posture.

And this will make my next Position probable, that *the parts of the Glass drops are contignated together in the form of an Arch*, and cannot any where yield or be drawn inwards, till by the removing of some one part of it (as it happens in the removing one of the stones of an Arch) the whole Fabrick is shatter'd, and falls to pieces, and each of the Springs is left at liberty, suddenly to extricate itself: for since I have made it probable, that the internal parts of the Glass have a contractive power inwards, and the external parts are incapable of such a Contraction, and the figure of it being spherical; it follows, that the superficial parts must bear against each other, and keep one another from being condens'd into a less room, in the same manner as the stones of an Arch conduce to the upholding each other in that Figure. And this is made more probable by another Experiment which was communicated to me by an excellent Person, whose extraordinary Abilities in all kind of Knowledge, especially in that of Natural things, and his generous Disposition in communicating, encouraged me to have recourse to him on many occasions. The Experiment was this: Small Glass-balls (about the bigness of that represented in the Figure *℄*.) would, upon rubbing or scratching the inward Surface, fly all insunder, with a pretty brisk noise; whereas neither before nor after the inner Surface had been thus scratcht, did there appear any flaw or crack. And putting the pieces of one of those broken ones together again, the flaws appeared much after the manner of the black lines on the Figure, *℄*. These Balls were small, but exceeding thick bubbles of Glass, which being crack'd off from the *Puntilion* whilst very hot, and so suffered to cool without nealing them in the

the Oven over the Furnace, do thereby (being which cools much quicker then green Glass, and brittler) acquire a very *porous* and very brittle. the point of a Needle or Bodkin, the inside of pretty hard, and then laid on a Table, it will, will break into many pieces with a brisk noise, and then span asunder on the Table: Now though the pieces of those of a *fulminating* drop, yet they as plainly fly apart, the parts of the Glass have a great *Conatus* to fly asunder together by the *tenacity* of the parts of the inward, as soon as those parts are crazed by hard rubbing, city spoiled, the springiness of the more outward divulsion, and the broken pieces will, if the cond further scratcht with a Diamond, fly again into small

From which preceding considerations it will follow, sudden flying asunder of the parts as soon as this Accident or broken, proceeds from the springing of the endeavouring to *extricate* themselves as soon as they get form it with such a quickness, that they throw one another great violence: for the Particles that compose the to lye further from one another, and therefore as soon as are loosened they dart themselves outward with great many Springs would do, if they were detained and as soon as they should be suddenly loosened; and then ing inward, they contract so violently, that they run fly into multitude of small shivers or sands. Now not, either to the naked Eye, or the *Microscope*, yet there may be abundance of small flaws or cracks, strong reflecting Air is not got between the *contign*. And that this may be so, I argue from this, that able to make a crack or flaw, in some convenient place and disappear at pleasure, according as by pressing asunder the contiguous parts, I excluded or admitted ing Air between the parts: And it is very probable some Body, that is either very rarified Air, or for which fills the bubbles of these drops; which I argue nesses of them, and next, from the vivid reflection of hibite: Now though I doubt not, but that the Air rarified, yet that there is some in them, to such as was riment of the disappearing of a crack upon the experiment suppose it will seem more then probable.

The Seventh and last therefore that I shall propose heating and cooling of these so extended bodies does Glass to a looser and softer temper. And this I found keeping them for a pretty while very red hot in a fire them to grow a little lighter, and the small Stems ken and snapt any where, without at all making